Northwest Science
Volume 68 (1994)
Author and Subject Index

[All entry headings for AUTHORS are distinguished from subject entries by the use of capital letters.]

ADAMS, A.B., and B. CROOKS. Spatial distributions of two gentians in association with an ill-defined subalpine wetland boundary in sheep-grazed areas of Horseshoe Basin, Wa. 112(abs1)
ADAMS, D.L. *see* Ferguson and Adams, 241-249
ADAMS, M.J., and R.B. BURY. The length of larval life in coastal populations of the tailed frog. 112(abs2)
AGEE. J.K. Book review: *Defining Sustainable Forestry*. 299-300
_____ *see* Krusemark and Agee, 134(abs91)
agriculture
  effects on raptors, Leptich, 167-171
  livestock and vegetation, Cartwright and Hall, 120(abs33)
AKRE, R.D. Insect hazards, with special emphasis on yellowjackets. 112(abs3)
ALLISON, L. Vegetational analysis of an upland-wetland gradient at Cannery Pond, Anacortes, Washington. 112(abs4)
amphibians
  Ascaphus tadpoles, Brown, 116(abs19)
  declines, Corn, 121(abs39)
  forest practices impact, Kelsey, 133(abs88)
  frogs and logging, Bull, 117(abs23)
  northern leopard frogs, Andelman and McAllister, 113(abs5)
  in Oregon, Corkran and Thoms, 121(abs38)
  salamander demographics, Leonard and Richter, 135(abs96)
  salamander distribution, Wilson *et al.*, 157(abs181)
  salamander tagging, Stringer and Aubry, 153(165)
  salamanders distinguished, Thoms and Corkran, 154(abs171)
  stream amphibians, Bury, 118(abs25)
  tailed frog abundance, Hawkins *et al.*, 129(abs72)
  tailed frog feeding, Hawkins and Feminella, 129(abs71)
  tailed frog larval life, Adams and Bury, 112(abs2)
  tiger salamander, Dobler, 122(abs44)
  along Truckee River, Panik and Barrett, 197-204
ANDELMAN, S.J., and McALLISTER, K. Preliminary assessment of the status of the northern leopard frog in Washington state. 113(abs5)
ANDERSON, P.S. Distribution and habitat selection by wintering trumpeter swans (*Cygnus buccinator*) in the lower Skagit Valley, Washington. 113(abs6)
ANTHONY, R.G. *see* Rosenberg *et al.*, 266-271
archaeology
  Columbia Plateau utilization, Morgan, 140(abs115)
arthropods
  biodiversity in old-growth forests, Winchester, 158(abs185)
  hazards to researchers, Akre, 112(abs3)
  in maple forest, Mortensen and McKenzie, 140(abs116)
  see also insects
ATTEWELL, D. *see* Shaffer *et al.*, 149(abs152)
AUBRY, K.B. *see* Raley and Aubry, 144(abs132)
_____ *see* Ruggiero *et al.*, 147(abs143)
_____ *see* Stringer and Aubry, 153(abs165)
AUBRY, K.B., and C.M. RALEY. Landscape- and stand-level studies of pileated woodpeckers: design constraints and stand-level results. 113(abs7)
AUBUCHON, D. *see* Forsman *et al.*, 273-276
AWBREY, M., and D. LIGHTFOOT. PCR amplification of resistance genes from polluted soils. 113(abs8)

BAKER, R.O. *see* Witmer and Baker, 158(abs186)
BARKER, W.W. *see* Robson *et al.*, 145(abs136)
BARNES, J.L., and P.G. WOLF. Genetic diversity and gene flow in *Mirabilis macfarlanei*. 114(abs9)
BARRETT, S. *see* Panik and Barrett, 197-204
BARTRAND, E.L., T.N. PEARSONS, and S.W. MARTIN. Movement of rainbow trout in the upper Yakima River basin. 114(abs10)
bats *see* mammals, small
BAUMGARTNER, D. *see* Hanley and Baumgartner, 127(abs64)
bears *see* mammals, large
BERG, D.R. Silvicultural control of forest canopies. 114(abs11)
BERRY, D.M., and E.S. MENGES. Post fire regeneration and clonal growth strategies of two Florida scrub oaks. 114(abs12)
BETTS, B.J., and R.W. WISSEMAN. Habitat characteristics and geographic range of the Blue Mountains *Cryptochia* caddisfly (*Cryptochia neosa*). 115(abs13)
BEVIS, K.R. Primary cavity excavator birds in grand fir forests of central Washington's East Cascades. 115(abs14)
birds
  Canada geese on Columbia River, Fitzner *et al.*, 37-42
  duck winter diets, Fitzner and Gray, 172-177
  forest canopy dwellers, Sharpe, 150(abs153)
  in forest canopies, Horton, 131(abs77)
  and forest planning, Garman, 126(abs57)
  habitat characteristics, Lehmkuhl, 135(abs95)
  landscape and habitat, Huff *et al.*, 131(abs79)
  loggerhead shrikes, Leu and Manuwal, 136(abs98)
  marbled murrelet nests, Peck *et al.*, 143(abs128)
  neotropical migrants, Pearson and Manuwal, 143(abs126)
  nest-site relationships, Rich and Dobkin, 145(abs134)
  pileated woodpecker habitat, Aubry and Raley, 113(abs7)
  pileated woodpecker trapping, Raley and Aubry, 144(abs132)
  primary cavity excavators, Bevis, 115(abs14)
  raptors and agriculture, Leptich, 167-171
  sage grouse habitat use, Schroeder, 149(abs150)
  shrub-steppe bird community diet, Stephens, 152(abs162)
  spotted owl behavior, Sovern *et al.*, 152(abs161)
  spotted owl habitat, Carey, 118(abs28)
  spotted owl prey, Johnson and Carey, 132(abs81), 132(abs82)
  trumpeter swans in winter, Anderson, 113(abs6)
  waterbirds in Cabell Marsh, Merrifield and Naughton, 139(abs111)
BISWELL, B.L. *see* Sovern *et al.*, 152(abs161)
BLACK, R.A. *see* Healy *et al.*, 130(abs73)
BLATT, J.W. Dispersal and demographics of coyote (*Canis latrans*) pups in south-central Washington. 115(abs15)
Blue Mountains
  Cryptochia caddisflies, Betts and Wisseman, 115(abs13)
  forest fires, Maruoka, 138(abs107)
book reviews
  Balancing Act, Lertzman *et al.*, 65-68
  Biology and Management of Red Alder, The, Dawson, 301-302

Compass and Gyroscope, Switzer, 230-231
Defining Sustainable Forestry, Agee, 299-300
Ecological Integrity and the Management of Ecosystems, Bradfield, 297-298
On the Home Front, Rosa, 294-296
Principles of Conservation Biology, Mills, 303-304
Saving Nature's Legacy, Schreiner, 305-306
Seeing the Forest Among the Trees, Lertzman *et al.*, 65-68
botany
Acacia koa dimorphic leaves, Hansen, 128(abs65)
Achnatherum species, Maze, 139(abs109)
Botrychium growth patterns, Rust and Burnett, 147(abs144)
camas occurence prediction, Henn, 130(abs74)
deep-water moss, McIntire *et al.*, 11-21
endangered *Castilleja levisecta*, Wentworth, 156(abs180)
Erigeron species reproduction, Robson *et al.*, 145(abs136)
Orobanche pinorum, Ellis *et al.*, 123(abs47)
Penstemon harringtonii fruit set, Nielson and Tepedino, 143(abs123)
plant interaction with 60 Hz, Wagner, 156(abs178)
rare orchid, *Cypripedium fasciculatum*, Harrod, 129(abs69)
rare orchid, *Cypripedium fasciculatum*, Harrod and Knecht, 129(abs70)
rare orchid, *Spiranthes diluvialis*, Sipes and Tepedino, 151(abs160)
rare plant, *Mirabilis macfarlanei*, Barnes and Wolf, 114(abs9)
rare plant distribution, Salstrom, 148(abs147)
rare plant reintroduction, Gamon, 125(abs56)
rare plants of Puget Sound, Thomas and Carey, 154(abs169)
Rosaceae evolution, Morgan and Soltis, 140(abs114)
W-waves, Wagner, 156(abs177)
yellow starthistle invasion, Roch *et al.*, 86-96
see also bryophytes; mosses
BRACKEN, E., and J. MUSSER. The Colockum elk study. 115(abs16)
BRADFIELD, G.A. Book review: *Ecological Integrity and the Management of Ecosystems*. 297-298
BRADLEY, R. Comparison of animal infectivity in vitro excystation , and fluorogenic dye as methods to determine *Giardia lamblia* variability. 116(abs17)
BRAND, D.G. *see* Brown and Brand, 117(abs21)
British Columbia
conifer growth and N and P availability, Brown and Brand, 117(abs21)
elemental deficiencies in forests, Brown *et al.*, 117(abs22)
shrew identification, Woodward, 277-283
BRITTELL, J.D., and S.A. POZZANGHERA. Long term maintenance of Washington's north American lynx population: a landscape planning approach. 116(abs18)
BROWN, H.A. Comparative biology of montane and lowland populations of *Ascaphus* tadpoles in northwestern Washington. 116(abs19)
_____ Ecology of a beach population of the western fence lizard, *Sceloporus occidentalis*, in northern Puget Sound. 116(abs20)
BROWN, K.J. *see* Martin *et al.*, 138(abs106)
BROWN, K.R., and D.G. BRAND. Effects of site preparation on N and P availability in a cutover in northern interior British Columbia. 117(abs21)
BROWN, K.R., R.M. FOURNIER, and G.F. WEETMAN. Elemental deficiencies in Douglas-fir stands of southeastern British Columbia. 117(abs22)
BROWN, L.A. *see* McIntosh *et al.*, special issue 36-53
bryophytes
at Crater Lake, McIntire *et al.*, 11-21
cryptogamic forest survey, Camacho and Otting, 118(abs26)
and land management alternatives, Lesher *et al.*, 136(abs97)
as nematode food, Merrifield, 139(abs110)
on San Juan Islands, Harpel, 128(abs67)
BUKATA, R.P. *see* Jerome *et al.*, 43-52, 53-64
BUKTENICA, M. *see* McIntire *et al.*, 11-21
BULL, E.L. Effect of logging on tailed frog populations in northeastern Oregon. 117(abs23)
BURNETT, E. *see* Rust and Burnett, 147(abs144)
BURY, R.B. Freshwater turtles of the Pacific Northwest: issue of introduced species. 117(abs24)
_____ Natural history and evolution of stream amphibians in the Pacific Northwest. 118(abs25)
_____ *see* Adams and Bury, 112(abs2)
BUSKIRK, S.W. *see* Ruggiero *et al.*, 147(abs143)

California
amphibians and reptiles along Truckee River system, Panik and Barrett, 197-204
California black oak stands, McDonald and Ritchie, 6-10
fires in Douglas fir/hardwood forest, Wills and Stuart, 205-212
CAMACHO, F.J., and N. OTTING. Cryptogamic survey of McDonald-Dunn Research Forest. 118(abs26)
CAMPBELL, D. *see* Witmer and Campbell, 158(abs187)
CAMPBELL, D.L., D.L. NOLTE, and C.A. HARRINGTON. Protection of plants used to increase forest diversity. 118(abs27)
CAREY, A.B. Creating cavities in trees - one facet of ecosystem management. 118(abs28)
_____ Interactions of northwest forest canopies and arboreal mammals. 119(abs29)
_____ Some zoonoses posing risks to field biologists in the northwest. 119(abs30)
_____ *see* Johnson and Carey, 132(abs81), 132(abs82)
_____ *see* Kershner and Carey, 134(abs89), 134(abs90)
_____ *see* Ryan and Carey, 148(abs145)
_____ *see* Thomas and Carey, 153(abs168), 154(abs169)
_____ *see* Thomas *et al.*, 154(abs170)
_____ *see* Wilson and Carey, 157(abs182), 157(abs183), 157(abs184)
_____ *see* Wunder and Carey, 159(abs191), 159(abs192)
CAREY, A.B., T.M. WILSON, T.B. THOMAS, J.M. TRAPPE, and W. COLGAN. Ecosystem management: an experiment in managed stands. 119(abs31)
CARLSON, T.J. *see* Mueller *et al.*, 141(abs119)
CARROLL, G.C. Canopy fungi: function and diversity. 119(abs32)
CARTWRIGHT, L., and F.C. HALL. Effects of livestock removal on vegetation of the Sandy River Delta, Troutdale, Or. 120(abs33)
CASSIDY, K. Current land cover of the Columbia Basin. 120(abs34)
CERMAK, J. *see* Martin *et al.*, 138(abs106)
CEULEMANS, R. *see* Martin *et al.*, 138(abs106)
CHAPMAN, R.C. *see* Roch *et al.*, 86-96
CHAPPELL, C.B., and R.C. CRAWFORD. A preliminary classification of forest vegetation in the Puget Trough, Washington. 120(abs35)
CHATTERS, J.C. *see* Links et *al.*, 136(abs99)
CHRISTY, J. *see* Lesher *et al.*, 136(abs97)
CLARK, D.L., and M.V. WILSON. Heat-treatment effects on seed bank species of an old-growth Douglas-fir forest. 1-5
CLARKE, S.E. *see* McIntosh *et al.*, special issue 36-53
CLARKSON, D.A., and L.S. MILLS. Hypogeous sporocarps in forest remains and clearcuts in southwest Oregon. 259-265

CLEMENT, J. Tropical forest canopy access and organisms, an introduction. 120(abs36)
COLGAN, W. *see* Carey *et al.*, 119(abs31)
color
colors of natural water, Jerome *et al.*, 43-64
Columbia Plateau
Canada geese nests, Fitzner *et al.*, 37-42
climatic trends, Quinn, 144(abs131)
geomorphic history, Stradling and Kiver, 152(abs163)
land cover, Cassidy, 120(abs34)
prehistoric utilization, Morgan, 140(abs115)
soils, Rouse, 147(abs142)
COMPANIYTSEV, V., and R.J. HARROD. Preliminary ecological observations of *Urophora affins*. 121(abs37)
conifers *see* forests
CORKRAN, C.C. *see* Thoms and Corkran, 154(abs171)
CORKRAN, C.C. and C. THOMS. Identifying Oregon amphibians in the field: new information from the field work. 121(abs38)
CORN, P.S. Common factors and contradictions in amphibian declines. 121(abs39)
Costa Rica
tropical forest canopy, Clement, 120(abs36)
coyotes *see* mammals, large
Crater Lake, Or.
deep-water moss, McIntire *et al.*, 11-21
CRAWFORD, R.C. *see* Chappell and Crawford, 120(abs35)
CRISSAFULLI, C.M. *see* Hawkins *et al.*, 129(abs72)
CROOKS, B. *see* Adams and Crooks, 112(abs1)
CUSHING, J. *see* Nadkami *et al.*, 141(abs120)

DAUBLE, D. Influence of water use practices on fisheries resources in the Yakima River basin. 121(abs40)
_____ *see* Martenson and Dauble, 137(abs104)
DAVIS, H. *see* Lertzman *et al.*, 65-68
DAWSON, J.O. Book review: *The Biology and Management of Red Alder*. 301-302
DE SANTO, T.L. *see* Peck *et al.*, 143(abs128)
deer *see* mammals, large
DEL MORAL, R. *see* Titus and del Moral, 154(abs172)
DENISON, W.C. Ascospores of Lobaria. 122(abs41)
DERR, C.C. Lichen transplant experiments using *Alectoria sarmentosa*, *Evernia prunastri* and *Lobaria pulmonaria* in western Oregon. 122(abs42)
DIVENS, M. An evaluation of methodologies used for sampling warmwater fish populations. 122(abs43)
DOBKIN, D.S. *see* Rich and Dobkin, 145(abs134)
DOBLER, F.C. The tiger salamander (*Ambystoma tigrinum*) in the Columbia Basin of eastern Washington. 122(abs44)
DOSS, D.S., and R.J. TAYLOR. Vegetation of the Beaver Creek Natural Resources Conservation Area. 123(abs45)
DOWNS, J.L. *see* Links *et al.*, 136(abs99)
_____ *see* Rickard and Downs, 145(abs135)
DRABEK, C.M. Summer and autumn temporal activity of the montane vole (*Microtus montanus*) in the field. 178-184
DRAKE, A., A. FARRELL, C. PHILLIPS, J. GLEASON, and M. GLEASON. Retention of the processing protease KEX2P in yeast is altered when its native lumenal spacer, TMD, and cytosolic tail are replaced with domains from a human homologue. 123(abs46)
ducks *see* birds

EBERHARDT, L.E. *see* Fitzner *et al.*, 37-42
ecology
Beaver Creek vegetation survey, Doss and Taylor, 123(abs45)
camas occurrence, Henn, 130(abs74)
cold-desert ecosystem, Link *et al.*, 136(abs99)
ecosystem management, Marshall, 137(abs103)
epiphyte grazers in Padilla Bay, Shaw, 150(abs156)
forest canopy ecosystems, Shaw, 150(abs154)
forest management, Everett and Hessburg, 124(abs51)
grass competition, Healy *et al.*, 130(abs73)
grassland and yellow starthistle, Roché *et al.*, 86-96
grassland conservation, Moseley and Mancuso, 141(abs117)
knapweed control, Companiytsev and Harrod, 121(abs37)
land cover analysis, Cassidy, 120(abs34)
larval fish feeding, Faurot and White, 189-196
livestock and vegetation, Cartwright and Hall, 120(abs33)
lizards, Brown, 116(abs20)
meadows and trees, Woodward *et al.*, 159(abs190)
plant invasion, Titus and del Moral, 154(abs172)
riparian ecosystems and cottonwoods, Reed and McKay, 145(abs133)
riparian vegetation, Phillips and Mettler, 144(abs130)
riparian vegetation and conifers, Maas and Emmingham, 137(abs102)
river basin historical fish habitat changes, McIntosh *et al.*, special issue 36-53
river basin historical resource use, Wissmar *et al.*, special issue 1-35
sagebrush management, Schuller, 149(abs151)
salt marsh vegetation, Lefstad and Fonda, 135(abs94)
shrub-steppe bird community diet, Stephens, 152(abs162)
shrub-steppe community fires, Pelland, 144(abs129)
shrub-steppe exotic plants, Roché, 146(abs137)
shrub-steppe lichens, Rosentreter, 147(abs141)
shrub-steppe management, Sands, 149(abs149)
shrub-steppe plants, Rickard and Downs, 145(abs135)
shrub-steppe vegetation, Mueller, 141(abs118)
soil-plant community relationships, McDaniel *et al.*, 22-30
stream amphibians, Bury, 118(abs25)
sub-alpine wetland gentians, Adams and Crooks, 112(abs1)
watershed analysis, Gaines and Harrod, 125(abs55)
watershed restoration, Toth, 155(abs173)
wetlands and climate trends, Quinn, 144(abs131)
wetlands and forest communities, Allison, 112(abs4)
Yakima River corridor land use, Johnson, 132(abs83)
EDDLEMAN, L.E. *see* Rose and Eddleman, 79-85
EDGE, W.D. *see* Leach and Edge, 31-36
elk *see* mammals, large
ELLIS, M., R. TAYLOR, and R. HARROD. Autogamy in *Orobanche pinorum*. 123(abs47)
EMMINGHAM, W.H. *see* Lavender and Emmingham, 135(abs93)
_____ *see* Maas and Emmingham, 137(abs102)
EMMINGHAM, W.H., and K. MAAS. Survival and growth of conifers released from alder dominated coastal riparian zones. 123(abs48)
ENGLISH, A. *see* Hoffmann *et al.*, 130(abs76)
ERICKSON, J.L. Bat activity in managed forests of the southwestern Cascade Range. 124(abs49)
ERICKSON, J.L., and S.D. WEST. Use of signal processing software for analysis of bat vocalizations. 124(abs50)
EVANS, B. *see* Lertzman *et al.*, 65-68
EVERETT, R.L., and P.F. HESSBURG. Developing a science basis for ecosystem management. 124(abs51)
EVERSMAN, S. Lichens in fellfields in alpine meadow communities in the Beartooth Plateau, Montana and Wyoming. 124(abs52)

FALEN, A.L. *see* Falen-Rowan *et al.*, 125(abs53)
_____ *see* McDaniel *et al.*, 22-30

FALEN-ROWAN, E.L., P.A. McDANIEL, A.L. FALEN, D.S. PAGE-DUNROESE, and K.E. HOUSTON. Differences in ectomycorrhizal fungi densities and soil properties in forest soils of northwest Wyoming. 125(abs53)
FARRELL, A. *see* Drake *et al.*, 123(abs46)
FAUROT, M.W., and R.G. WHITE. Feeding ecology of larval fishes in Lake Roosevelt, Washington. 189-196
FELDHAUSEN, A.S. *see* Johnson *et al.*, 284-293
FEMINELLA, J. *see* Hawkins *et al.*, 129(abs72)
FERGUSON, D.E., and D.L. ADAMS. Effects of pocket gophers, bracken fern, and western coneflower on survival and growth of planted conifers. 241-249
FILIP, G.M. Forest health in decline in central Oregon: a 13-year case study. 233-240
fires
in conifer stands, Goslin and Spies, 127(abs62)
in Douglas fir/hardwood forest, Wills and Stuart, 205-212
frequency in Blue Mountains, Maruoka, 138(abs107)
heat effects on seeds, Clark and Wilson, 1-5
management in shrub-steppe communities, Pellant, 144(abs129)
regeneration of scrub oaks, Berry and Menges, 114(abs12)
understory disturbance, Kuhlmann and Fonda, 134(abs92)
watershed fire, Krusemark and Agee, 134(abs91)
see also forests
firs *see* forests
fish
comparison measurements, Hoffmann *et al.*, 130(abs76)
historical habitat changes, McIntosh *et al.*, special issue 36-53
larval feeding ecology, Faurot and White, 189-196
rainbow trout in Teanaway River, Harper and James, 128(abs68)
rainbow trout movement, Bartrand *et al.*, 114(abs10)
rainbow trout populations, Martin and Pearsons, 138(abs105)
resources in Yakima River, Dauble, 121(abs40)
salmonid densities in Situk River, Johnson *et al.*, 284-293
salmonid production, Martenson and Dauble, 137(abs104)
salmonids in Yakima River, Tuck, 155(abs174)
sampling methods, Divens, 122(abs43)
steelhead, Hubble, 131(abs78)
video monitoring, Mueller *et al.*, 141(abs119)
FITZNER, R.E., and R.H. GRAY. Winter diet and weights of Barrow's and common goldeneye in southcentral Washington. 172-177
FITZNER, R.E., L.E. EBERHARDT, W.H. RICKARD, and R.H. GRAY. Great Basin Canada goose nesting on the mid-Columbia River, Washington: an historical perspective and update, 1981-1990. 37-42
Florida
fire regeneration of scrub oaks, Berry and Menges, 114(abs12)
FONDA, R. *see* Kuhlmann and Fonda, 134(abs92)
_____ *see* Lefstad and Fonda, 135(abs94)
FORD, D. *see* Nadkarni *et al.*, 141(abs120)
forests
amphibian responses, Kelsey, 133(abs88)
arthropod communities, Winchester, 158(abs185)
arthropods in maple forest, Mortensen and McKenzie, 140(abs116)
artificial den sites, Johnson and Carey, 132(abs81), 132(abs82)
bat activity, Erickson, 124(abs49)
bird cavity excavators, Bevis, 115(abs14)
bird habitat characteristics, Lehmkuhl, 135(abs95)
bird habitat relationships, Huff *et al.*, 131(abs79)
birds and planning, Garman, 126(abs57)
brewers spruce biosystematics, Taylor and Hahn, 153(abs167)
California black oak branching, McDonald and Ritchie, 6-10
canopy access, Hughes and Jordan, 131(abs80)
canopy access in Costa Rica, Clement, 120(abs36)
canopy bats, Wunder and Carey, 159(abs192)
canopy birds, Horton, 131(abs77)
canopy birds, Sharpe, 150(abs153)
canopy cyanolichens, Sillett, 151(abs158)
canopy ecosystems, Shaw, 150(abs154)
canopy fungi, Carroll, 119(abs32)
canopy gaps and bud-break, Van Pelt, 155(abs175)
canopy lichen diversity, Peck and McCune, 143(abs127)
canopy lichens, Rosentreter, 146(abs140)
canopy macrolichens, Shaw *et al.*, 150(abs155)
canopy mammals, Carey, 119(abs29)
canopy processes in silver fir, Martin *et al.*, 138(abs106)
canopy research, Rose, 146(abs139)
Canopy Research Network, Nadkarni *et al.*, 141(abs120)
canopy research techniques, Shaffer *et al.*, 149(abs152)
canopy silvicultural control, Berg, 114(abs11)
canopy structure, North, 143(abs125)
canopy structure, Van Pelt and North, 155(abs176)
canopy-atmosphere interactions, Rose, 146(abs138)
carnivore conservation, Ruggiero *et al.*, 147(abs143)
conifer growth, Emmingham and Maas, 123(abs48)
conifer growth, Ferguson and Adams, 241-249
conifer growth and N and P availability, Brown and Brand, 117(abs21)
conifer stands, Goslin and Spies, 127(abs62)
conifers and riparian vegetation, Maas and Emmingham, 137(abs102)
cryptogamic survey, Camacho and Otting, 118(abs26)
Douglas-fir and alder growth, Lavender and Emmingham, 135(abs93)
dwarf mistletoes, Mathiasen, 138(abs108)
ecosystem management, Carey *et al.*, 119(abs31)
ecosystem management, Everett and Hessburg, 124(abs51)
elemental deficiencies, Brown *et al.*, 117(abs22)
establishing trees in meadows, Woodward *et al.*, 159(abs190)
fire regeneration of scrub oaks, Berry and Menges, 114(abs12)
fires in Blue Mountains, Maruoka, 138(abs107)
fires in Douglas fir/hardwood forest, Wills and Stuart, 205-212
Fort Lewis forest management, Thomas *et al.*, 154(abs170)
fungi, Falen-Rowan *et al.*, 125(abs53)
health decline in Oregon forests, Filip, 233-240
heat effects on seeds, Clark and Wilson, 1-5
increasing plant diversity, Campbell *et al.*, 118(abs27)
land management alternatives, Lesher *et al.*, 136(abs97)
large trees, Foster, 125(abs54)
lichens in western Cascades, Neitlich, 142(abs121)
logging and frogs, Bull, 117(abs23)
old-growth forests, Sillett and Neitlich, 151(abs159)
Pacific yew sprouting, Minore, 140(abs113)
Ponderosa pine and western juniper, Rose and Eddleman, 79-85
Puget Trough vegetation classification, Chappell and Crawford, 120(abs35)
Quercus shumardii complex, Hess, 130(abs75)
river basin historical resource use and management, Wissmar *et al.*, special issue 1-35
small mammals and biosolids, Nickelson, 143(abs122)
stewardship program, Hanley and Baumgartner, 127(abs64)
succession changes, Habeck, 69-78

tree cavities enhance biodiversity, Carey, 118(abs28)
tree growth and fertilization, Stringer and West, 152(abs164)
truffles in remnants and clearcuts, Clarkson and Mills, 259-265
understory species, Kuhkmann and Fonda, 134(abs92)
ungulate herbivory importance, Woodward *et al.*, 97-110
vole habitat associations, Rosenberg *et al.*, 266-272
watershed analysis, Gaines and Harrod, 125(abs55)
watershed fire, Krusemark and Agee, 134(abs91)
watershed restoration, Toth, 155(abs173)
wetlands and forest communities, Allison, 112(abs4)
white oak woodland management, Ryan and Carey, 148(abs145)
whitebark pine decline assessment, Keane *et al.*, 213-229
woodpeckers and snags, Aubry and Raley, 113(abs7)
young forest management, Thomas and Carey, 153(abs168)
FORSMAN, E.D. *see* Sovern *et al.*, 152(abs161)
FORSMAN, E.D., I.A. OTTO, D. AUBUCHON, J.C. LEWIS, S.G. SOVERN, K.J. MAURICE, and T. KAMINSKI. Reproductive chronology of the northern flying squirrel on the Olympic Peninsula, Washington. 273-276
FOSBERG, M.A. *see* McDaniel *et al.*, 22-30
FOSTER, R.S. Through the Emergent Zone, documenting forest giants of the Pacific NW, a video. 125(abs54)
FOURNIER, R.M. *see* Brown *et al.*, 117(abs22)
frogs *see* amphibians
fungi
cryptogamic forest survey, Camacho and Otting, 118(abs26)
forest canopy fungi, Carroll, 119(abs32)
forest soil fungi, Falen-Rowan *et al.*, 125(abs53)
hypogeous sporocarps in remnants and clearcuts, Clarkson and Mills, 259-265
land management alternatives and, Lesher *et al.*, 136(abs97)

GAINES, W.L., and R.J. HARROD. Watershed analysis for wildlife species. 125(abs55)
GAMON, J.G. Rare plant protection in Washington state: is there a role for reintroduction, translocation and mitigation? 125(abs56)
GARMAN, S.L. Stand and landscape-level bird-habitat association models in forest planning. 126(abs57)
GEE, G.W. *see* Links *et al.*, 136(abs99)
geese *see* birds
GEISER, L.H. Establishment of an air quality biomonitoring program using lichens in the Tongass National Forest, southeast Alaska. 126(abs58)
General Land Office
records used to assess forest change, Habeck, 69-78
geography
cirque moraines, Long, 137(abs101)
Columbia Basin land cover, Cassidy, 120(abs34)
Columbia Plateau climatic trends, Quinn, 144(abs131)
Columbia Plateau geomorphic history, Stradling and Kiver, 152(abs163)
Columbia Plateau prehistoric utilization, Morgan, 140(abs115)
Columbia Plateau soils, Rouse, 147(abs142)
coppice dune topography, Link *et al.*, 136(abs99)
ecosystem management, Marshall, 137(abs103)
flood plain development, Johnson, 132(abs83)
GIS analysis of wetland habitats, Adams and Crooks, 112(abs1)
GIS habitat analysis, Henn, 130(abs74)
land management of sagebrush, Schuller, 149(abs151)
land management of shrub-steppe, Sands, 149(abs149)
landscape patterns and birds, Huff *et al.*, 131(abs79)
river basin historical fish habitat changes, McIntosh *et al.*, special issue 36-53
river basin historical resource use, Wissmar *et al.*, special issue 1-35
stream entrenchment, Sullivan, 153(abs166)
GESSEL, S.P. *see* Walker *et al.*, 250-258
Giardia
G. lamblia viability, Bradley, 116(abs17)
GLEASON, J. *see* Drake *et al.*, 123(abs46)
GLEASON, M. *see* Drake *et al.*, 123(abs46)
GLEW, K.A. Lichen communities in alpine regions of Washington state. 126(abs60)
GOLDOFT, M. The hantavirus associated pulmonary syndrome. 127(abs61)
gophers *see* mammals, small
GOSLIN, M.N., and T.A. SPIES. Structure and dynamics of multiple age class conifer stands in the Oregon Cascades. 127(abs62)
GRAY, R.H. *see* Fitzner and Gray, 172-177
_____ *see* Fitzner *et al.*, 37-42
GRENDON, J.H. Hantavirus risk factors, rodent reservoirs and prevention measures. 127(abs63)
grouse *see* birds

HABECK, J.R. Using General Land Office records to assess forest succession in Ponderosa pine/Douglas fir forests in western Montana. 69-78
HAGESTEDT, R. *see* Huff *et al.*, 131(abs79)
HAHN, S. *see* Taylor and Hahn, 153(abs167)
HALL, F.C. *see* Cartwright and Hall, 120(abs33)
HANLEY, D., and D. BAUMGARTNER. Forest stewardship educational program. 127(abs64)
HANSEN, D.H. Establishment vs. persistence strategies in dimorphic leaves of *Acacia koa*. 128(abs65)
HANSON, C.C. *see* Robson *et al.*, 145(abs136)
HARDWICK, M. and S.D. SMITH. The seasonal distribution of the Trichoptera of Yakima River. 128(abs66)
HARKINS, K. *see* Shaw *et al.*, 150(abs155)
HARPEL, J.S. A preliminary report on the phytogeography and ecology of the mosses within the San Juan Islands, Washington. 128(abs67)
HARPER, D.D., and P.W. JAMES. A comparison of the food habits and microhabitat use of wild and hatchery-reared rainbow trout (*Onchorhynchus mykiss*) in the Teanaway River. 128(abs68)
HARRINGTON, C.A. *see* Campbell *et al.*, 118(abs27)
HARROD, R.J. Characteristics and dispersal of *Cypripedium fasciculatum* seeds. 129(abs69)
_____ *see* Companiytsev and Harrod, 121(abs37)
_____ *see* Ellis *et al.*, 123(abs47)
_____ *see* Gaines and Harrod, 125(abs55)
HARROD, R.J., and D.E. KNECHT. Preliminary observations of the reproductive ecology of *Cypripedium fasciculatum*. 129(abs70)
HAWKINS, C.P. Larval tailed frogs alter their feeding behavior in response to non-visual cues from four aquatic predators. 129(abs71)
HAWKINS, C.P., J. FEMINELLA, and C.M. CRISSAFULLI. Patterns of abundance and growth of tailed frog populations near the Mt. St. Helens blast zone. 129(abs72)
hazards, research *see* research hazards
HEALY, J.L., S.O. LINK, and R.A. BLACK. The role of hydraulic lift in competition between deep- and shallow-rooted grasses. 130(abs73)
HEIN, R.G., P.A. TALCOTT, J.L. SMITH, and W.L. MYERS. Blood selenium values of selected wildlife populations in Washington. 185-188

HENN, T.P. Exploring predictive models for *Camassia quamash* Pursh (Greene) using data from ecological parameters and geographic information systems. 130(abs74)
HESS, W.J., and N. STOYNOFF. Taxonomic status of *Quercus acerifolia* (Fagaceae) and a morphological comparision of four members of the *Quercus shumardii* complex. 130(abs75)
HESSBURG, P.F. *see* Everett and Hessburg, 124(abs51)
HILLERY, K. *see* Shaffer *et al.*, 149(abs152)
HINCKLEY, T.M. *see* Martin *et al.*, 138(abs106)
HOFFMANN, A., D.A. NEITZEL, and A. ENGLISH. A research tool to aid compromise: what should I measure?. 130(abs76)
HORTON, S.P. Use of northwest forest canopies by large birds. 131(abs77)
HOUSTON, D.B. *see* Woodward *et al.*, 97-110
HOUSTON, K.E. *see* Falen-Rowan *et al.*, 125(abs53)
HOUSTON, K.W. *see* McDaniel *et al.*, 22-30
HUBBLE, J.D. A study of the summer steelhead, *Oncorhynchus mykiss*, in several intermittent tributaries of the Status Creek basin, Washington. 131(abs78)
HUFF, M.H., T.K. MELLEN, and R. HAGESTEDT. Linking landscape patterns to avian habitat relationships. 131(abs79)
HUGHES, S., and K. JORDAN. Methods and materials utilized in the construction of minimal impact rainforest canopy access systems. 131(abs80)

Idaho
  planted conifer growth, Ferguson and Adams, 241-249
  raptors and agriculture, Leptich, 167-171
  soil-plant community relationships, McDaniel *et al.*, 22-30
insects
  caddis flies in Yakima River, Hardwick and Smith, 128(abs66)
  Cryptochia caddisflies, Betts and Wisseman, 115(abs13)
  hazards to researchers, Akre, 112(abs3)
  stoneflies, Minakawa and Kraft, 139(abs112)
  stoneflies in Washington, Sammeth and Kraft, 148(abs148)
  Urophora affins fruit fly, Companiytsev and Harrod, 121(abs37)

JAMES, P.W. *see* Harper and James, 128(abs68)
JEROME, J.H., R.P BUKATA, P.H. WHITFIELD, and N. ROUSSEAU. Colours of natural waters
  1. Factors controlling the dominant wavelength.
  2. Observations of spectral variations in British Columbia rivers. 43-64
JOHNSON, D.E., and A.B. CAREY. Natural and artificial den sites used on the forest ecosystem study, Fort Lewis. 132(abs81)
_____ Preliminary evaluation of artificial nest boxes and cavities in managed stands 132(abs82)
JOHNSON, R.L. *see* Mueller *et al.*, 141(abs119)
JOHNSON, S.W., J.F. THEDINGA and A.S. FELDHAUSEN. Juvenile salmonid densities and habitat use in the mainstem Situk River, Alaska, and potential effects of glacial flooding. 284-293
JOHNSON, W. The Yakima River corridor: habitat potential and land use. 132(abs83)
JONES, L.L.C., and W.P. LEONARD. Reptiles of the Pacific Northwest. 132(abs84)
JONES, L.L.C., and M.G. RAPHAEL. Ecology of American martens in a lodgepole pine-bitterbrush community in south-central Oregon: an early progress report. 133(abs85)
_____ Remote photographic techniques for detecting and monitoring carnivorous mammals. 133(abs86)
JORDAN, K. *see* Hughes and Jordan, 131(abs80)
junipers *see* forests

KAMINSKI, T. *see* Forsman *et al.*, 273-276
KEANE, R.E., P. MORGAN, and J.P. MENAKIS. Landscape assessment of the decline of whitebark pine (*Pinus albicaulis*) in the Bob Marshall Wilderness complex, Montana, USA. 213-229
KELLER, B.L. *see* Shoemake and Keller, 151(abs157)
KELLEY, B.F. Habitat characteristics of mule deer bedsites in Grant and Douglas counties, central Washington. 133(abs87)
KELSEY, K.A. Responses of headwater stream amphibians to forest practices in western Washington. 133(abs88)
KERSHNER, J.E. and A.B. CAREY. A study of the habitat characteristics of the spotted skunk, *Spilogale putorius*, in western Washington and Oregon. 134(abs89)
_____ Vegetative characteristics contributing to the presence of northern flying squirrels in the Oregon Coast Range. 134(abs90)
KIVER, E.P. *see* Stradling and Kiver, 152(abs163)
KNECHT, D.E. *see* Harrod and Knecht, 129(abs70)
KRAFT, G.F. *see* Minakawa and Kraft, 139(abs112)
_____ *see* Sammeth and Kraft, 148(abs148)
KRUSEMARK, F. and J.K. AGEE. A fire history of the Bull Run watershed. 134(abs91)
KUCERA, J. *see* Martin *et al.*, 138(abs106)
KUHLMANN, E. and R. FONDA. Disturbance effects on understory species of a *Pinus ponderosa-Pseudotsuga menziesii* forest. 134(abs92)

lakes
  Crater Lake deep water moss, McIntire *et al.*, 11-21
  Lake of the Woods limnology, Salinas, 148(abs146)
  Lake Roosevelt larval fish, Faurot and White, 189-196
LARSEN, J.H. *see* Wilson *et al.*, 157(abs181)
LARSON, G.L. *see* McIntire *et al.*, 11-21
LAVENDER D.P., and W.H. EMMINGHAM. Comparing growth of douglas-fir (*Pseudotsuga menziesii* [mirb.] Franco) and red alder (*Alnus rubra* Bong.) in a mixed cluster plantation with standard grid plantations. 135(abs93)
LEACH, R.H., and W.D. EDGE. Summer home range and habitat selection by white-tailed deer in the Swan Valley, Montana. 31-36
LEFSTAD, E., and R. FONDA. Gradient analysis of the vegetation in a lagoonal salt marsh, Whidbey Island, Washington. 135(abs94)
LEHMKUHL, J.F. Interpreting habitat characteristics of birds at stand and landscape scales. 135(abs95)
LEONARD, W.P. *see* Jones and Leonard, 132(abs84)
LEONARD, W.P., and K.O. RICHTER. Western long-toed salamander demographics and oviposition in a small vernal wetland of the Puget Sound lowlands. 135(abs96)
LEPTICH, D.J. Agricultural development and its influence on raptors in southern Idaho. 167-171
LERTZMAN, K., B. EVANS, B. MOREHOUSE, H. DAVIS, and T. POLAND. Book Review: Two views of ecological issues in forestry: *Balancing Act*, and *Seeing the Forest among the Trees*. 65-68
LESHER, R.D., R. ROSENTRETER, and J. CHRISTY. The role of fungi, lichens, and bryophytes in the development of management alternatives for federal lands in the Pacific Northwest. 136(abs97)

LEU, M., and D.A. MANUWAL. The influence of habitat degradation on the breeding ecology of loggerhead shrikes *Lanius ludovicianus* in the shrubsteppe region. 136(abs98)
LEWIS, J.C. *see* Forsman *et al.*, 273-276
LI, H.W. *see* Wissmar *et al.*, special issue 1-35
lichens
air quality monitoring, Geiser, 126(abs58)
alpine, Glew, 126(abs60)
alpine meadows, Eversman, 124(abs52)
canopy diversity, Peck and McCune, 143(abs127)
canopy lichens, Rosentreter, 146(abs140)
canopy macrolichens, Shaw *et al.*, 150(abs155)
cryptogamic forest survey, Camacho and Otting, 118(abs26)
cyanolichen growth rates, Sillett, 151(abs158)
land management alternatives and, Lesher *et al.*, 136(abs97)
Lobaria ascospores, Denison, 122(abs41)
shrub-steppe lichens, Rosentreter, 147(abs141)
transplant experiments, Derr, 122(abs42)
western Cascades, Neitlich, 142(abs121)
LIGHTFOOT, D. *see* Awbrey and Lightfoot, 113(abs8)
LINK, S.O. *see* Healy *et al.*, 130(abs73)
LINK, S.O., W.J. WAUGH, J.L. DOWNS, M.E. THIEDE, J.C. CHATTERS, and G.W. GEE. Effects of coppice dune topography and vegetation on soil water dynamics in a cold-desert ecosystem. 136(abs99)
LOFROTH, E.C. Scale dependent analyses of habitat selection by marten in the sub-boreal spruce biogeoclimatic zone, British Columbia. 136(abs100)
LONG, W.A. Chronology of cirque moraines between Mount Stuart and Bonanza Peak, north Cascade Range, Wa. 137(abs101)
lynx *see* mammals, large
LYON, L.J. *see* Ruggiero *et al.*, 147(abs143)

MAAS, K. *see* Emmingham and Maas, 123(abs48)
MAAS, K., and W. EMMINGHAM. Establishment of conifers under existing riparian vegetation in the Oregon Coast range. 137(abs102)
mammals, large
black bear foraging, Noble and Meslow, 142(abs124)
carnivore-human conflicts, Witmer and Oldenburg, 158(abs188)
coyote dispersal, Blatt, 115(abs15)
elk herd habitat, Bracken and Musser, 115(abs16)
fisher habitat use, Weir, 156(abs179)
in forest canopies, Carey, 119(abs29)
forest carnivore conservation, Ruggiero *et al.*, 147(abs143)
lynx populations, Brittell and Pozzanghera, 116(abs18)
mule deer bedsites, Kelley, 133(abs87)
natal dispersal, Wolff, 159(abs189)
spotted skunk, Kershner and Carey, 134(abs89)
ungulate blood selenium values, Hein *et al.*, 185-188
ungulates and forests, Woodward *et al.*, 97-110
white-tailed deer, Leach and Edge, 31-36
mammals, small
bat vocalizations, Erickson and West, 124(abs50)
bats in forest canopy, Wunder and Carey, 159(abs192)
bats in forests, Erickson, 124(abs49)
fisher habitat use, Weir, 156(abs179)
flying squirrel dens, Wilson and Carey, 157(abs183)
flying squirrel reproduction, Forsman *et al.*, 273-276
flying squirrels, Kershner and Carey, 134(abs90)
in forest canopies, Carey, 119(abs29)
forest fertilizer effects, Nickelson, 142(abs122)
forest trapping, Wilson and Carey, 157(abs182)
gopher damage management, Witmer and Campbell, 158 (abs187)
hantavirus infection in rodents, Goldoft, 127(abs61)
hantavirus infection in rodents, Grendon, 127(abs63)
marten habitat, Lofroth, 136(abs100)
martens in Oregon, Jones and Raphael, 133(abs85)
natal dispersal, Wolff, 159(abs189)
remote photography, Jones and Raphael, 133(abs86)
rock squirrel hibernation, Shoemake and Keller, 151(abs157)
shrew communities, Wunder and Carey, 159(abs191)
shrew identification, Woodward, 277-283
spotted skunk, Kershner and Carey, 134(abs89)
vole activity, Drabek, 178-184
vole habitat associations, Rosenberg *et al.*, 266-272
weasels, Wilson and Carey, 157(abs184)
MANCUSO, M. *see* Moseley and Mancuso, 141(abs117)
MANUWAL, D.A. *see* Leu and Manuwal, 136(abs98)
_____ *see* Pearson and Manuwal, 143(abs126)
MARSHALL, D.B. Where we came from and what's next from a historical perspective. 137(abs103)
MARTENSON, G.A., and D. DAUBLE. Evaluation of water sources for the artificial production of anadromous salmonids. 137(abs104)
MARTIN, S.W. *see* Bartrand *et al.*, 114(abs10)
MARTIN, S.W., and T.N. PEARSONS. Variation in rainbow trout populations of the upper Yakima River: implications for ecological impact assessment. 138(abs105)
MARTIN, T.A., K.J. BROWN, T.M. HINCKLEY, J.S. ROMBOLD, F.G. MEINZER, J. CERMAK, J. KUCERA, and R. CEULEMANS. Branch sapflow measurement as a tool for investigation of canopy processes in *Abies amabilis*. 138(abs106)
MARUOKA, K.R. Fire frequency survey in the Blue Mountains, Oregon and Washington. 138(abs107)
MATHIASEN, R.L. Dwarf mistletoes in forest canopies. 138(abs108)
MAURICE, K.J. *see* Forsman *et al.*, 273-276
MAZE, J., and K.A. ROBSON. A new species of *Achnatherum* (*Oryzopsis*) from Oregon. 139(abs109)
McALLISTER, K.R. *see* Andelman and McAllister, 113(abs5)
_____ *see* Wilson *et al.*, 157(abs181)
McCAUSLAND, G. *see* Thomas *et al.*, 154(abs170)
McCUNE, B. *see* Peck and McCune, 143(abs127)
McDANIEL, P.A. *see* Falen-Rowan *et al.*, 125(abs53)
McDANIEL, P.A., K.W. HOUSTON, M.A. FOSBERG, and A.L. FALEN. Soil-plant community relationships in the Selkirk Mountains of northern Idaho. 22-30.
McDONALD, P.M., and M.W. RITCHIE. Epicormic branching of California black oak: effect of stand and tree characteristics. 6-10
McINTIRE, C.D., H.K. PHINNEY, G.L. LARSON, and M. BUKTENICA. Vertical distribution of a deep-water moss and associated ephiphytes in Crater Lake, Oregon. 11-21
McINTOSH, B.A. *see* Wissmar *et al.*, special issue 1-35
McINTOSH, B.A., J.R. SEDELL, J.E. SMITH, R.C. WISSMAR, S.E. CLARKE, G.H. REEVES, and L.A. BROWN. Historical changes in fish habitat for select river basins of eastern Oregon and Washington. special issue 36-53
McKAY, S. *see* Reed and McKay, 145(abs133)
McKENZIE, J.S. *see* Mortensen and McKenzie, 140(abs116)
MEINZER, F.G. *see* Martin *et al.*, 138(abs106)
MELLEN, T.K. *see* Huff *et al.*, 131(abs79)
MENAKIS, J.P. *see* Keane *et al.*, 213-229
MENGES, E.S. *see* Berry and Menges, 114(abs12)
MERRIFIELD, K. Sporophyte production and invertebrate population fluctuations in *Schistidium maritimum* (Turn.) Brusch. & Schimp., Yachats, Oregon. 139(abs110)

MERRIFIELD, K., and M. NAUGHTON. Waterbird censuses of Cabell Marsh, 1992 and 1993. 139(abs111)
MESLOW, E.C. *see* Noble and Meslow, 142(abs124)
METTLER, L. *see* Phillips and Mettler, 144(abs130)
MILLER, R.E. *see* Walker *et al.*, 250-258
MILLS, L.S. Book review: *Principles of Conservation Biology*. 303-304
_____ *see* Clarkson and Mills, 259-265
MINAKAWA, N., and G.F. KRAFT. A taxonomic key for Washington stonefly nymphs using hypercard. 139 (abs112)
MINORE, D. Stump sprouting in Pacific yew. 140(abs113)
molecular biology
  PCR process on polluted soil, Awbrey and Lightfoot, 113(abs8)
  rbcL sequence variation, Morgan and Soltis, 140(abs114)
  yeast processing protease, Drake *et al.*, 123(abs46)
Montana
  GLO records used to assess forest change, Habeck, 69-78
  white-tailed deer, Leach and Edge, 31-36
  whitebark pine decline assessment, Keane *et al.*, 213-229
MOORHEAD, B.B. *see* Woodward *et al.*, 97-110
MOREHOUSE, B. *see* Lertzman *et al.*, 65-68
MORGAN, D.R., and D.E. SOLTIS. Evolutionary implications of *rbcL* sequence variation in Roseaceae. 140(abs114)
MORGAN, P., *see* Keane *et al.*, 213-229
MORGAN, V. Prehistoric utilization on the Columbia Plateau. 140(abs115)
MORTENSEN, H., and J.S. McKENZIE. Canopy and terrestrial arthropod abundance in a big-lead maple forest, Quinalult River, Wa. 140(abs116)
MOSELEY, R.K., and M. MANCUSO. Conservation planning in the grasslands of Hells Canyon: an example from Craig Mountain, Idaho. 141(abs117)
mosses *see* bryophytes
Mount St. Helens
  plant invasion, Titus and del Moral, 154(abs172)
  tailed frogs, Hawkins *et al.*, 129(abs72)
MUELLER, M.M. A vegetation study of a thin-soiled, moderately disturbed site in the shrub-steppe of eastern Washington. 141(abs118)
MUELLER, R.P., T.J. CARLSON, and R.L. JOHNSON. Applying current technology to design fish video monitoring systems. 141(abs119)
MUSSER, J. *see* Bracken and Musser, 115(abs16)
MYERS, W.L. *see* Hein *et al.*, 185-188

NADKARNI, N., G. PARKER, D. FORD, J. CUSHING, and C. STALLMAN. The Canopy Research Network: a pathway for interdisciplinary exchange of scientific information on forest canopies. 141(abs120)
NAUGHTON, M. *see* Merrifield and Naughton, 139(abs111)
NEITLICH, P.N. Lichen abundance and diversity along a chronosequence from young managed stands to ancient forest, western Cascades, Oregon. 142(abs121)
_____ *see* Sillett and Neitlich, 151(abs159)
NEITZEL, D.A. *see* Hoffmann *et al.*, 130(abs76)
NELSON, S.K. *see* Peck *et al.*, 143(abs128)
Nevada
  amphibians and reptiles along Truckee River system, Panik and Barrett, 197-204
NICKELSON, S. Response of small mammal populations to biosolids application on Douglas-fir forests. 142(abs122)
NIELSON, R.L., and V.J. TEPEDINO. Factors affecting fruit set by *Penstemon harringtonii*. 142(abs123)
NOBLE, W.O., and E.C. MESLOW. Characteristics of spring foraging ecology among black bears (*Ursus americanus*) in the central coast ranges of Oregon. 142(abs124)
NOLTE, D.L. *see* Campbell *et al.*, 118(abs27)
NORTH, M.P. A comparison of canopy structure in three forest stand types. 143(abs125)
_____ *see* Van Pelt and North, 155(abs176)

oaks *see* forests
OLDENBURG, J.G. *see* Witmer and Oldenburg, 158(abs188)
Olympic National Park
  forests and ungulates, Woodward *et al.*, 97-110
orchids *see* botany
Oregon
  amphibians, Corkran and Thoms, 121(abs38)
  deep-water moss, McIntire *et al.*, 11-21
  forest health decline, Filip, 233-240
  logging and frogs, Bull, 117(abs23)
  martens, Jones and Raphael, 133(abs85)
  river basin historical fish habitat changes, McIntosh *et al.*, special issue 36-53
  river basin historical resource use, Wissmar *et al.*, special issue 1-35
  truffles in forest remnants, Clarkson and Mills, 259-265
  vole habitat associations, Rosenberg *et al.*, 266-272
OTTING, N. *see* Camacho and Otting, 118(abs26)
OTTO, I.A. *see* Forsman *et al.*, 273-276
owls *see* birds

PAGE-DUMROESE, D.S. *see* Falen-Rowan *et al.*, 125(abs53)
PANIK, H.R., and S. BARRETT. Distribution of amphibians and reptiles along the Truckee River system. 197-204
PARKER, G. *see* Nadkarni *et al.*, 141(abs120)
PEARSON, S.F., and D.A. MANUWAL. A comparison of life history and census studies in determining habitat use by three neotropical migrants. 143(abs126)
PEARSONS, T.N. *see* Bartrand *et al.*, 114(abs10)
_____ *see* Martin and Pearsons, 138(abs105)
PECK, J.E., and B. McCUNE. Green tree retention and canopy lichen communities. 143(abs127)
PECK, R.W., S.K. NELSON, and T.L. DE SANTO. Tree climbing as a technique for locating marbled murrelet nests. 143(abs128)
PELLANT, M. Fire management and rehabilitation strategies to maintain shrub steppe communities in southern Idaho. 144(abs129)
PHILLIPS, C. *see* Drake *et al.*, 123(abs46)
PHILLIPS, R.C., and L. METTLER. Planting of riparian vegetation along the Snake River in Washington state. 144(abs130)
PHINNEY, H.K. *see* McIntire *et al.*, 11-21
pines *see* forests
POLAND, T. *see* Lertzman *et al.*, 65-68
POZZANGHERA, S.A. *see* Brittell and Pozzanghera, 116(abs18)
protozoans
  Giardia lamblia viability, Bradley, 116(abs17)

QUINN, R.R. Recent climatic trends on the Columbia plateau and examples of wetland response. 144(abs131)

RALEY, C.M. *see* Aubry and Raley, 113(abs7)
RALEY, C.M., and K.B. AUBRY. A noose trap for capturing pileated woodpeckers. 144(abs132)
RAPHAEL, M.G. *see* Jones and Raphael, 133(abs85), 133(abs86)

raptors *see* birds
rare plants *see* botany
REED, J., and S. McKAY. Reproductive ecology and population genetics of black cottonwood in riparian ecosystems. 145(abs133)
REEVES, G.H. *see* McIntosh *et al.*, special issue 36-53
_____ *see* Wissmar *et al.*, special issue 1-35
reptiles
  fence lizards, Brown, 116(abs20)
  freshwater turtles, Bury, 117(abs24)
  Pacific northwest fauna, Jones and Leonard, 132(abs84)
  on Truckee River system, Panik and Barrett, 197-204
research hazards
  carnivore-human conflicts, Witmer and Oldenburg, 158(abs188)
  hantavirus pulmonary syndrome, Goldoft, 127(abs61)
  hantavirus pulmonary syndrome, Grendon, 127(abs63)
  researcher protection, Witmer and Baker, 158(abs186)
  to researchers from arthropods, Akre, 112(abs3)
  zoonoses infecting researchers, Carey, 119(abs30)
RICH, A.C., and D.S. DOBKIN. Nest site relationships among cavity-nesting birds in aspen woodlands of southeastern Oregon. 145(abs134)
RICHTER, K.O. *see* Leonard and Richter, 135(abs96)
RICKARD, W.H. *see* Fitzner *et al.*, 37-42
RICKARD, W.H., and J. DOWNS. Shrubsteppe plants of the Hanford site: distribution and abundance. 145(abs135)
RITCHIE, M.W. *see* McDonald and Ritchie, 6-10
rivers
  amphibians and reptiles along Truckee river, Panik and Barrett, 197-204
  caddisflies on Yakima river, Hardwick and Smith, 128(abs66)
  fisheries resources of Yakima river, Dauble, 121(abs40)
  rainbow trout in Teanaway river, Harper and James, 128(abs68)
  rainbow trout movement in Yakima river, Bartrand *et al.*, 114(abs10)
  rainbow trout populations in Yakima river, Martin and Pearsons, 138(abs105)
  riparian vegetation on Snake river, Phillips and Mettler, 144(abs130)
  river basin historical fish habitat changes, McIntosh *et al.*, special issue 36-53
  river basin historical resource use, Wissmar *et al.*, special issue 1-35
  salmonid densities and habitat in Situk river, Johnson *et al.*, 284-293
  salmonid runs in Yakima river, Tuck, 155(abs174)
  Yakima river corridor land use, Johnson, 132(abs83) *see also* ecology
ROBSON, K.A. *see* Maze and Robson, 139(abs109)
ROBSON, K.A., C.C. HANSON, and W.W. BARKER. Variation in reproductive structures for rare and common species of *Erigeron* L. (Asteraceae): exploring patterns of endemism. 145(abs136)
ROCHÉ, B.F. Exotic plants of the shrub steppe. 146(abs137)
ROCHÉ, B.F., C.T. ROCHÉ, and R.C. CHAPMAN. Impacts of grassland habitat on yellow starthistle (*Centaurea solstitalis* L.) invasion. 86-96
ROCHÉ, C.T. *see* Roché *et al.*, 86-96
ROHDE, J. *see* Thomas *et al.*, 154(abs170)
ROLPH, D.N. *see* Sovern *et al.*, 152(abs161)
ROMBOLD, J.S. *see* Martin *et al.*, 138(abs106)
ROSA, E.A. Book review: *On the Home Front*. 294-296
ROSE, C.L. Canopy-atmosphere interactions. 146(abs138)
_____ Ecophysiological processess in crowns and canopies of Ponderosa pine forests in the central Oregon Cascades. 146(abs139)
ROSE, J.A., and L.E. EDDLEMAN. Ponderosa pine and understory growth following western juniper removal. 79-85
ROSENBERG, D.K., K.A. SWINDLE, and R.G. ANTHONY. Habitat associations of California red-backed voles in young and old-growth forests in western Oregon. 266-271
ROSENTRETER, R. Canopy lichens and how to measure other relevant environmental site conditions in central Idaho. 146(abs140)
_____ Lichens of the shrub steppe. 147(abs141)
_____ *see* Lesher *et al.*, 136(abs97)
ROUSE, G.B. Soils of the northern Columbia plateau. 147(abs142)
ROUSSEAU, N. *see* Jerome *et al.*, 43-52, 53-64
RUGGIERO, L.F., K.B. AUBRY, S.W. BUSKIRK, L.J. LYON, and W.J. ZIELINSKI. The Forest Service's western forest carnivore conservation assessment. 147(abs143)
RUST, S.K., and E. BURNETT. Preliminary observations of seasonal patterns of growth in *Botrychium*. 147(abs144)
RYAN, L., and A. CAREY. Management of Oregon white oak (*Quercus garryana*) woodlands for biodiversity. 148(abs145)

salamanders *see* amphibians
SALINAS, J.T. A limnological study of a southern Oregon Cascade lake: Lake of the Woods. 148(abs146)
salmonids *see* fish
SALSTROM, D. Distribution patterns of rare plants in Washington. 148(abs147)
SAMMETH, C.J., and G.F. KRAFT. In search of Washington stoneflies. 148(abs148)
San Juan Islands
  mosses, Harpel, 128(abs67)
SANDS, A.R. History of land management on shrub steppe landscapes administered by the Bureau of Land Management in the Pacific Northwest. 149(abs149)
Sandy River delta
  livestock and vegatation, Cartwright and Hall, 120(abs33)
SCHREINER, E.G. Book review: *Saving Nature's Legacy*. 305-306
_____ *see* Woodward *et al.*, 97-110, 159(abs190)
SCHROEDER, M.A. Movement and habitat use of sage grouse in a fragmented landscape. 149(abs150)
SCHULLER, R. Challenges of managing small natural areas within the sagebrush ecosystem. 149(abs151)
SEDELL, J.R. *see* McIntosh *et al.*, special issue 36-53
_____ *see* Wissmar *et al.*, special issue 1-35
Selkirk Mountains, Id.
  soil-plant community relationships, McDaniel *et al.*, 22-30
SHAFFER, J., K. HILLERY, and D. ATTEWELL. Traditional and non traditional arboricultural techniques used in conjunction with platforms and walkways to aid the researcher in canopy access and site evaluation. 149(abs152)
SHARPE, F.A. Canopy dwelling birds. 150(abs153)
SHAW, D.C. Forest canopy ecosystem functions. 150(abs154)
SHAW, D.C., K. HARKINS, and D. WOODRUFF. Canopy microlichens in second-growth western hemlock. 150(abs155)
SHAW, T.C. Diel and vertical distribution variation of epiphyte grazers in a temperate eelgrass (*Zostera marina*) system. 150(abs156)
SHOEMAKE, S.R., and B.L. KELLER. Body temperature variation of rock squirrels during hibernation in southeastern Idaho. 151(abs157)

shrews *see* mammals, small
SILLETT, S.C. Growth rates of two old-growth-associated cyanolichens in the canopy of a 700 year old Douglas-fir forest in western Oregon. 151(abs158)
SILLETT, S.C., and P.N. NEITLICH. What's so special about old-growth forests? An epiphyte's perspective. 151(abs159)
SILSBEE, D.G. *see* Woodward *et al.*, 159(abs190)
SIPES, S.D., and V.J. TEPEDINO. Reproductive success of a rare riparian orchid. 151(abs160)
SMITH, J.E. *see* McIntosh *et al.*, special issue 36-53
_____ *see* Wissmar *et al.*, special issue 1-35
SMITH, J.L. *see* Hein *et al.*, 185-188
SMITH, S.D. *see* Hardwick and Smith, 128(abs66)
soils
Columbia Plateau soils, Rouse, 147(abs142)
fungi and, Falen-Rowan *et al.*, 125(abs53)
PCR amplification of resistance genes, Awbrey and Lightfoot, 113(abs8)
volcanic ash derived soils, Walker *et al.*, 250-258
SOLTIS, D.E. *see* Morgan and Soltis, 140(abs114)
SOVERN, S.G. *see* Forsman *et al.*, 273-276
SOVERN, S.G., E.D. FORSMAN, B.L. BISWELL, M. TAYLOR, and D.N. ROLPH. Diurnal behavior of the spotted owl in Washington. 152(abs161)
SPIES, T.A. *see* Goslin and Spies, 127(abs62)
spruce *see* forests
squirrels *see* mammals, small
STALLMAN, C. *see* Nadkami *et al.*, 141(abs120)
STEPHENS, D.A. Seasonal diet shifts and prey availability in a shrub-steppe bird community. 152(abs162)
STOYNOFF, N. *see* Hess and Stoynoff, 130(abs75)
STRADLING, D.F., and E.P. KIVER. The geomorphic history of the northern Columbia plateau. 152(abs163)
STRINGER, A.B., and K.B. AUBRY. Techniques for radiotelemetry and pit-tagging of salamanders. 153(abs165)
STRINGER, A.B., and S.D. WEST. Suppression of tree growth with nitrogen fertilization on western Washington powerline rights-of-way. 152(abs164)
STUART, J.D. *see* Wills and Stuart, 205-212
SULLIVAN, A.E. Entrenchment of small and ephemeral streams in arid central Washington state. 153(abs166)
SWINDLE, K.A. *see* Rosenberg *et al.*, 266-271
SWITZER, J.V. Book review: *Compass and Gyroscope*. 230-231

TALCOTT, P.A. *see* Hein *et al.*, 185-188
TAYLOR, M. *see* Sovern *et al.*, 152(abs161)
TAYLOR, R.J. *see* Doss and Taylor, 123(abs45)
_____ *see* Ellis *et al.*, 123(abs47)
TAYLOR, R.J., and S. HAHN. The biosystematics of brewers spruce (*Picea breweriana*). 153(abs167)
TEPEDINO, V.J. *see* Nielson and Tepedino, 142(abs123)
_____ *see* Sipes and Tepedino, 151(abs160)
THEDINGA, J.F. *see* Johnson *et al.*, 284-293
THIEDE, M.E. *see* Links *et al.*, 136(abs99)
THOMAS T.B. *see* Carey *et al.*, 119(abs31)
THOMAS, T.B., and A.B. CAREY. Commercial thinning and alternative tree species regeneration to enhance species and architectural diversity in young, managed forests. 153(abs168)
_____ Rare plants of south Puget Sound. 154(abs169)
THOMAS, T.B., A. CAREY, G. McCAUSLAND, and J. ROHDE. The evolution of silviculture on Fort Lewis military reservation. 154(abs170)
THOMS, C. *see* Corkran and Thoms, 121(abs38)
THOMS, C., and C.C. CORKRAN. Identifying Oregon amphibians in the field: distinctions between long-toed and northwestern salamanders. 154(abs171)
TITUS, J.H., and R. DEL MORAL. Invasion of plants into artificially constructed microsites on Mount St. Helens. 154(abs172)
TOTH, S.E. Taneum Creek watershed analysis and restoration: an example of cooperative watershed planning. 155(abs173)
TRAPPE, J.M. *see* Carey *et al.*, 119(abs31)
trout *see* fish
TUCK, B. Historical and current runs of anadromous salmonids in the Yakima River basin, Washington. 155(abs174)

VAN PELT, R. Bud-break of advance regeneration as an indicator of response to canopy gap formation. 155(abs175)
VAN PELT, R., and M.P. NORTH. Canopy structure in forests of the Pacific Northwest. 155(abs176)

W-waves
in dark matter, Wagner, 156(abs177)
WAGNER, O.E. Dark matter, medium for W-waves. 156(abs177)
_____ Plant interaction with 60 hz. 156(abs178)
WALKER, R.B., S.P. GESSEL, and R.E. MILLER. Greenhouse and laboratory evaluation of two soils derived from volcanic ash. 250-258
Washington
Ascaphus tadpoles, Brown, 116(abs19)
blood selenium values in wildlife, Hein *et al.*, 185-188
dispersal and demographics of coyotes, Blatt, 115(abs15)
duck winter diets, Fitzner and Gray, 172-177
flying squirrel reproduction, Forsman *et al.*, 273-276
gentians in subalpine wetlands, Adams and Crooks, 112(abs1)
larval life of tailed frogs, Adams and Bury, 112(abs2)
lynx populations, Brittell and Pozzanghera, 116(abs18)
northern leopard frogs, Andelman and McAllister, 113(abs5)
primary cavity excavator birds, Bevis, 115(abs14)
rare plants, Gamon, 125(abs56)
rare plants, Salstrom, 148(abs147)
rare plants of Puget Sound, Thomas and Carey, 154(abs169)
river basin historical fish habitat changes, McIntosh *et al.*, special issue 36-53
river basin historical resource use, Wissmar *et al.*, special issue 1-35
salamanders, Dobler, 122(abs44)
wetlands and forest communities, Allison, 112(abs4)
wintering trumpeter swans, Anderson, 113(abs6)
water
colors of natural water, Jerome *et al.*, 43-64
WAUGH, W.J. *see* Links *et al.*, 136(abs99)
WEETMAN, G.F. *see* Brown *et al.*, 117(abs22)
WEIR, R.D. Landscape habitat use by fishers in central British Columbia. 156(abs179)
WENTWORTH, J.B. The demography and population dynamics of *Castilleja levisecta*, an endangered perennial. 156(abs180)
WEST, S.D. *see* Erickson and West, 124(abs50)
_____ *see* Stringer and West, 152(abs164)
Whidbey Island
salt marsh vegetation, Lefstad and Fonda, 135(abs94)
WHITE, R.G. *see* Faurot and White, 189-196
WHITFIELD, P.H. *see* Jerome *et al.*, 43-52, 53-64
WILLS, R.D., and J.D. STUART. Fire history and stand development of a Douglas fir-hardwood forest in northern California. 205-212
WILSON, A.G., K.R. McALLISTER, and J.H. LARSEN. Distribution of Van Dyke's salamander (*Plethodon vandykei*). 157(abs181)
WILSON, M.V. *see* Clark and Wilson, 1-5

WILSON, S.M., and A.B. CAREY. Trap placement and interpretation of habitat use patterns in forest floor small mammals. 157(abs182)
WILSON, T.M. *see* Carey *et al.*, 119(abs31)
WILSON, T.M., and A.B. CAREY. Den sites of *Glaucomys sabrinus* in the Pacific Northwest. 157(abs183)
_____ Weasels: underrated predators of northwest forests. 157(abs184)
WINCHESTER, N.N. Centinelan extinctions: extirpation of northern temperate old-growth arthropod communities. 158(abs185)
WISSEMAN, R.W. *see* Betts and Wisseman, 115(abs13)
WISSMAR, R.C. *see* McIntosh *et al.*, special issue 36-53
WISSMAR, R.C., J.E. SMITH, B.A. McINTOSH, H.W. LI, G.H. REEVES, and J.R. SEDELL. A history of resource use and disturbance in riverine basins of eastern Oregon and Washington (early 1800s-1990s). special issue 1-35
WITMER, G.W., and R.O. BAKER. The protection of research personnel, equipment, and data. 158(abs186)
WITMER, G.W., and D. CAMPBELL. Research on nonlethal methods of pocket gopher (*Thomomys* spp.) damage management. 158(abs187)
WITMER, G.W., and J.G. OLDENBURG. Resolving carnivore-human conflicts. 158(abs188)
WOLF, P.G. *see* Barnes and Wolf, 114(abs9)
WOLFF, J.O. Sex-biased natal dispersal in mammals. 159(abs189)
WOODRUFF, D. *see* Shaw *et al.*, 150(abs155)
WOODWARD, A., E.G. SCHREINER, and D.G. SILSBEE. Establishment of trees in subalpine meadows of Olympic National Park. 159(abs190)
WOODWARD, A., E.G. SCHREINER, D.B. HOUSTON, and B.B. MOORHEAD. Ungulate-forest relationships in Olympic National Park: retrospective exclosure studies. 97-110
WOODWARD, S.M. Identification of *Sorex monticolus* and *Sorex vagrans* from British Columbia. 277-283
WUNDER, L., and A.B. CAREY. Merriam's shrew and small mammal communities on the Yakima training center, Wa. 159(abs191)
---------- Use of the forest canopy by bats. 159(abs192)

yeast
  processing protease, Drake *et al.*, 123(abs46)

ZIELINSKI, W.J. *see* Ruggiero *et al.*, 147(abs143)